

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP00/03372

## A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl<sup>7</sup> C12N15/11, C12Q1/68, C12N1/20

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl<sup>7</sup> C12N15/00-15/90, C12N1/20

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

GENBANK/EMBL/DDBJ/GENESEQ

BIOSIS/WPI (DIALOG)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	PubMed:10758895 A. Maruyama et al., "Phylogenetic analysis of psychrophilic bacteria isolated from the Japan Trench, including a description of the deep-sea species <i>Psychrobacter pacificensis</i> sp. nov." Int.J.Syst.Evol.Microbiol., 50, pp.835-846, March 2000	1-9
X	Marine Biology, 128, 1997	8-9
Y	A. Maruyama et al., "Low temperature adaptation of deep-sea bacteria isolated from the Japan Trench", pp.705-711	1-7
Y	Applied and Environmental Microbiology, 63(8), August 1997	1-7
A	John P. Bowman et al., "Diversity and association of psychrophilic bacteria in Antarctic sea ice", pp.3068-3078	8-9
Y	International Journal of Systematic Bacteriology, 46(4), October 1996, John P. Bowman et al., "Novel <i>Psychrobacter</i> species from Antarctic ornithogenic soils", pp.841-848	1-7
A		8-9

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search  
21 August, 2000 (21.08.00)

Date of mailing of the international search report  
05 September, 2000 (05.09.00)

Name and mailing address of the ISA/  
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

## PATENT COOPERATION TREATY

**PCT**  
**NOTIFICATION OF TRANSMITTAL**  
**OF COPIES OF TRANSLATION**  
**OF THE INTERNATIONAL PRELIMINARY**  
**EXAMINATION REPORT**

(PCT Rule 72.2)

From the INTERNATIONAL BUREAU

To:

HIRAKI, Yusuke  
Toranomon No.5 Mori Building Third  
Floor  
17-1, Toranomon 1-chome  
Minato-ku  
Tokyo 105-0001  
JAPON

Date of mailing (day/month/year)  
12 December 2001 (12.12.01)

Applicant's or agent's file reference  
PH-999-PCT

International application No.  
PCT/JP00/03372

Applicant JAPAN as represented by SECRETARY OF AGENCY OF INDUSTRIAL SCIENCE  
AND TECHNOLOGY et al

HIRAKI  
JAN - 4, 2002  
RECEIVED

**IMPORTANT NOTIFICATION**

International filing date (day/month/year)  
25 May 2000 (25.05.00)

**1. Transmittal of the translation to the applicant.**

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

**2. Transmittal of the copy of the translation to the elected Offices.**

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

EP,AU,CA,NO,NZ,US

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

JP

**3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).**

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Form PCT/IB/338 (July 1996)

Authorized officer

Eliott PERETTI

Telephone No. (41-22) 338.83.38

4533274

7-T  
Translation

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PH-999-PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP00/03372	International filing date (day/month/year) 25 May 2000 (25.05.00)	Priority date (day/month/year) 25 May 1999 (25.05.99)
International Patent Classification (IPC) or national classification and IPC C12N 15/11, C12Q 1/68, C12N 1/20		
Applicant JAPAN as represented by SECRETARY OF AGENCY OF INDUSTRIAL SCIENCE AND TECHNOLOGY		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 04 December 2000 (04.12.00)	Date of completion of this report 16 July 2001 (16.07.2001)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

Form PCT/IPEA/409 (cover sheet) (July 1998)

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP00/03372

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☐ the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☒ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☒ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	1-7	YES
	Claims	8-9	NO
Inventive step (IS)	Claims		YES
	Claims	1-9	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO

## 2. Citations and explanations

## Claims 8 and 9

Document 1 (A. Maruyama et al., "Low temperature adaptation of deep-sea bacteria isolated from the Japan Trench", Marine Biology, 128, 1997, pp. 705-711) discloses aerobic, Gram negative, non-motile, non-sporulating and oxidase positive psychrotrophic bacteria thought to belong to the Moraxella-Psychrobacter group, isolated from deep sea water. Therefore, the inventions described in the above claims are not novel because the inventions described in the above claims are the same as an invention disclosed in Document 1.

## Claims 1-7

Document 2: John P. Bowman et al., "Diversity and association of psychrophilic bacteria in Antarctic sea ice", Applied and Environmental Microbiology, 63 (8), Aug. 1997, pp. 3068-3078

Document 3: John P. Bowman et al., "Novel Psychrobacter species from Antarctic ornithogenic soils", International Journal of Systematic Bacteriology, 46 (4), Oct. 1996, pp. 841-848

Documents 2 and 3 disclose 16S rDNA sequences for Psychrobacter glacincola and Psychrobacter immobilis and

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for *Psychrobacter immobilis*, *Psychrobacter uratovorans*, *Psychrobacter frigidicola* and *Psychrobacter phenylpyruvicus*, respectively, and preparation of a probe from a known sequence in a biological species and use of said probe in order to obtain the corresponding sequence in a related species were known art within this technical field at the time of filing the present application. Therefore, application of the aforementioned known art to a *Psychrobacter* species disclosed in Document 2 or 3 in order to obtain 16S rDNA of psychrotrophic bacteria disclosed in Document 1 and thus obtain 16S rDNA of a microorganism also thought to belong to the *Moraxella-Psychrobacter* group is obvious to a person skilled in the art. Comparison of long nucleotide sequences from related species and selection of a highly conserved region as a probe is also obvious to a person skilled in the art. Moreover, the inventions do not appear to offer any surprising effect which would not be expected from Documents 1-3 and known art. Therefore, the inventions described in the above claims do not involve an inventive step.